

Lecture Notes in Control and Information Sciences

Edited by A.V. Balakrishnan and M. Thoma

16

Stochastic Control Theory and Stochastic Differential Systems

Proceedings of a Workshop of the
„Sonderforschungsbereich 72 der
Deutschen Forschungsgemeinschaft
an der Universität Bonn“
which took place in January 1979
at Bad Honnef

Edited by
M. Kohlmann and W. Vogel



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PREFACE

This book contains the contributions to a workshop on stochastic control theory and stochastic differential systems at the University of Bonn in January 1979. The main aim of this conference was to give a compact and possibly rather complete presentation of the present state of the art and - in particular - of the scope of methods used in stochastic system theory, in order to stimulate the interest of scientists and students working in other areas of stochastics, in engineering sciences, in econometrics, etc.. Thus the success of the conference depended on the willingness of the lecturers to meet our request to give an as understandable as possible introduction into stochastic system theory from their different points of viewing the various problems. As we know that most of the lecturers spent considerable time to make the surveys on their research understandable for non-experts, and as they had a remarkable patience in answering questions and in explaining their works during the conference several times, we want to take this opportunity to express them our deep thanks. We also have to thank them for their careful preparation of their manuscripts.

The first part of this volume presents survey lectures on different topics and methods of stochastic system theory. Thus this part may be seen as an introductory compendium for non-experts. These surveys written by fourteen excellent scientists whose names stand for a special way of seeing the problems of stochastic system theory cover the broad spectrum of problems and methods of the art.

The second part of this book contains all research reports presented during the conference. These papers give a glimpse into the present state of research in the field of stochastic system theory. We hope that the ideas and methods presented there will contribute toward the second aim of the workshop, namely to enforce the cooperation of scientists working on stochastic differential systems and the interchange of ideas.

We gratefully acknowledge the financial support of the Sonderforschungsbereich 72 of the Deutsche Forschungsgemeinschaft and the hospitality of the Elly-Hölterhoff-Stiftung in Bad Honnef, where the conference took place. Finally, we would like to thank Mrs. I. Kreuder, Dr. N. Christopeit, Dr. K. Helmes and many students of the University of Bonn, who helped us organize the workshop.

Bonn, January 1979

Michael Kohlmann

Walter Vogel

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